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10/587,794	07/31/2006	Dirk Vollmer	3781	1275

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Striker Striker & Stenby
103 East Neck Road
Huntington, NY 11743

EXAMINER

BASKIN, JEREMY S

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,794	Applicant(s) VOLLMER ET AL.	
	Examiner Jeremy S. Baskin	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/31/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Claims 8-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 27 May 2009.

The traversal is on the ground(s) that the species of all groups have a common idea which is defined in Claim 1, the broadest claim currently on file which is generic to all species disclosed. This is not found persuasive because the existence of a generic claim does not preclude the existence of patentably distinct species within an application. Furthermore, Applicant has not provided evidence as to why the species of the previous Office action are not patentably distinct. The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 13 is objected to because of the following informalities: In line 4, the claim states "the damping disk (54) has a surface is not circular" which should read "the damping disk (54) has a surface that is not circular." Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-7 and 12-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not

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described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In line 8, the claim states "the hydraulic damping occurs only in a subrange of motion (62)". In the species that illustrated in Figures 1-10, the damping member, whether it be a disk or diaphragm, is always in communication with the line fluid pressure of the channel 12, 14. As such, there exists a damping effect via fluid resistance throughout the entire stroke of the closing member. Claims 2-7 and 12-24 are rejected due to their dependency upon Claim 1.

Claims 22 and 23 are further rejected under this section heading. The claims recite limitations directed to an undisclosed valve embodiment that possesses both a damping disk and damping diaphragm. Since the embodiment was not adequately disclosed within the written description of the application, the claimed invention is not enabled.

The claims have been examined on the merits as best understood by the Examiner. Applicant must present a persuasive argument, supported by suitable proofs where necessary, that one skilled in the art would be able to make and use the claimed invention using the application as a guide. The evidence provided by Applicant need not be conclusive but merely convincing to one of ordinary skill in the art.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2, 12, 19, 20, and 22-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In regard to Claim 2, line 3, the limitation "the throttle cross-section" lacks antecedent basis.

In regard to Claim 12, line 4, the limitation "the damping disk" lacks antecedent basis.

In regard to Claims 19 and 20, the claims possess subject matter that lacks antecedent basis or there exists an error with respect to their claim dependency upon Claim 14. The claims have been examined on the merits with each claim being dependent upon Claim 16.

In regard to Claims 22-24, the claims are replete with limitations that lack antecedent basis such as "the undamped part", "the valve stem", "the rods", and "the diaphragm."

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 12, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Rapp et al. (6,062,531).

In regard to Claim 1, Rapp teaches a pulse valve 1 with a closing body 25 that cooperates with a valve seat 21 to open and close a supply and discharge channel 16. The movement of the closing body is hydraulically damped by a throttle point at 52 in Figure 2 and occurs only in a subrange of motion when the member 51 engages the damping chamber 50.

In regard to Claim 2, the throttle has a cross-section that increases after the damped subrange in the upward linear direction of the valve actuator 39 in Figure 2. Here, the throttle is

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formed by the shoulder of member 51 and the mating surface at the top of member 34' which separate from one another as the valve actuator rises.

In regard to Claim 12, the closing body 25 is connected to a damping disk 51 which possesses an axially projecting edge in Figure 2.

In regard to Claim 23, the damping disk 51 is coaxial with the valve stem in a direction behind the closing body in Figure 2.

In regard to Claim 24, the damping disk 51 has a surface area larger than the closing body in Figure 2.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapp in view of Gaskell (4,889,288).

In regard to Claim 4, Rapp teaches wherein the closing body 25 is connected with a damping disk 51 provided in a damping cylinder 50. A throttle gap formed between disk 51 and wall 52 is formed around the circumference of the disk. However, Rapp fails to teach where the throttle gap expands in a subrange as the reciprocating motion of the closing body progresses.

Gaskell teaches a hydraulic pulse valve with damping. In Figure 3, Rapp teaches where a throttle gap 48 of a damping cylinder 27 expands in a subrange as the reciprocating motion of a closing body 46 progresses via a chamfer feature.

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At the time of the invention, it would have been obvious by one of ordinary skill in the art to include, in Rapp, a throttle gap that expands with the linear movement of the closing body, as taught by Gaskell, so as to reduce the damping effect while the closing member is within the subrange.

In regard to Claim 5, Rapp teaches where the damping cylinder 50 is open on an end face and the damping disk 51 exits the damping cylinder shortly before the end of the reciprocating motion of the closing body in Figure 2.

11. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapp in view of Gaskell, taken with Yang (6,572,074 B2).

Rapp in view of Gaskell fail to specifically teach where the flow cross section of the damping cylinder expands continually at its open end.

Yang discloses an electromechanical pulse valve. Yang teaches, in Figure 2, where a damping cylinder 156 includes an inner chamfer that expands continually at its open end.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to place the expanding throttling portion, or chamfer, of Gaskell onto the end of the damping cylinder of Rapp, as taught by Yang, so as to create a mating surface between the closing member and damping cylinder that provides for soft contact upon actuation.

12. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapp in view of Volcov et al. (2868492 A).

In regard to Claims 13-15, Rapp fails to teach where the damping disk has a surface that is not circular with a perforated structure.

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Volcov discloses a discharge valve with hydraulic damping. Volcov teaches where the damping disk possesses non-circular surfaces in Figure 2. The valve disk further possesses a fine, woven, perforated structure with holes that can be measured in micrometer units (col. 2, lines 1-15).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Rapp, non-circular surfaces and small holes onto a damping disk, as taught by Volcov, so as to create a throttled dampening effect as fluid passes through the damping disk.

13. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapp in view of Masaji et al. (JP 58028079 A, English abstract only)

In regard to Claims 16-18, Rapp fails to teach where the hydraulic throttling is produced via a fluid-permeable diaphragm connected around the housing and valve stem or rod.

Masaji discloses an electromagnetic fluid control valve with damping. Masaji teaches where a fluid permeable 25 diaphragm 6 is clamped to the housing 18 and stem 17. The diaphragm is elastic and semi-rigid with the attachment of plates 9 and 10. For the valve to work properly as desired, the elastic properties of the diaphragm are matched to the desired damping characteristics of the closing body 5.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Rapp, a fluid permeable diaphragm attached between the valve stem and valve body, as taught by Masaji, so as a means of creating a damping effect on the central valve actuator.

14. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapp in view of Masaji, in further view of Volcov.

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In regard to Claims 19-21 Rapp in view of Masaji fail to teach where the diaphragm has a fine-meshed network with the cross-section of the mesh in the micrometer range.

Volcov teaches where the diaphragm disk possesses non-circular surfaces in Figure 2. The diaphragm further possesses a fine, woven, perforated structure with holes that can be measured in micrometer units (col. 2, lines 1-15). As with the diaphragm of Masaji, in order for the diaphragm to display its elastic properties, it is notoriously known in the art for the diaphragm to be formed of a composite material.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Rapp in view of Masaji, a fine meshed composite diaphragm, as taught by Volcov, so as to create a throttled dampening effect as fluid passes through the diaphragm.

15. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rapp in view of Hess (2004/0155212 A1).

In regard to Claim 22, Rapp fails to teach where the undamped part of the reciprocating motion is formed by a passage between the valve stem and valve disk.

Hess discloses an electromagnetic valve with damping. Hess teaches where a damping disk 20 is axially movable on a displacement rod thereby creating a passage between the two members. The axial movement, or lost motion, between the damping disk and stem effectively creates an damping effect in a single subrange of motion of the displacement rod (see Abstract and [0011]).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Rapp, lost motion between the damping disk and valve stem, as taught by Hess, so as to create a damping effect in the operating direction of the valve stem upon closure.

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16. Claims 1-4 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al.

In regard to Claim 1, Yang teaches a pulse valve 10 with a closing body 14 that cooperates with a valve seat 15 to open and close a supply and discharge channel 16. The movement of the closing body is damped by a throttle point at 256 in Figure 3 and occurs only in a subrange of motion when the member 226 travels linearly.

Yang fails to specifically teach where the movement of the valve is hydraulically damped but rather pneumatically damped via ports 52, 58.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate in Yang, hydraulic fluid instead of air as the working fluid within a solenoid valve, since the two working fluids are functionally equivalent.

In regard to Claim 2, the throttle cross-section formed between 226 and 256 in Figure 3 increases after the damped subrange formed at the step feature on member 256 (col. 5, lines 45-59).

In regard to Claim 3, a bypass 58, 59 extends in parallel with the subrange throttle point created by apertures 60, 62.

In regard to Claim 4, the closing body is connected with a damping disk 226 in cylinder 256 of 58 and forms a circumferential throttle gap therein in Figure 3. As the disk travels upward, the throttle gap expands in a subrange.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bae (5,832,883) discloses an electromagnetic valve with fluid damper possessing a

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bypass channel. Pischinger et al. (4,515,343) discloses an electromagnetic valve with chamfers on a damper cylinder wall. Richeson, Jr. (4,794,890) discloses a valve with an annular groove on a damper cylinder chamber.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy S. Baskin whose telephone number is (571) 270-7421. The examiner can normally be reached on Monday through Friday, 7:30AM to 5:00PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Rivell/
Primary Examiner, Art Unit 3753

/J. S. B./
Examiner, Art Unit 3753